VARIATION AMONG MALES OF DROSOPHILA SILVESTRIS IN THE 'ŌLA'A TRACT, HAWAII VOLCANOES NATIONAL PARK*

Hampton L. Carson
Department of Genetics
University of Hawaii at Manoa
Honolulu, Hawaii 96822

Like most Hawaiian Drosophila, this species has a number of secondary sexual characters in males. Among these are long hairs (cilia) on the tibia of the foreleg. Cilia appear to have an important role in courtship, since, at a crucial stage of this complicated process, the male uses this leg surface to drum seductively on the female's abdomen. Males from Kona populations (Hualālai to Kahuku and Waihaka) show about 50 cilia arranged in two marginal rows (Nos. 5 and 6) with a bare area in between. Northern and eastern populations (Kohala to Pi'ihonua and 'Ōla'a), however, show almost twice as many; about 25 cilia (Row 5a) occupy the formerly bare area between the marginal rows. This is a novel morphological acquisition for species in this group; none of the closest relatives of silvestris on Hawai'i, Maui, Moloka'i, and 'Oahu have any cilia occupying the bare area between rows 5 and 6. The table presents means and variances of cilia number for three samples of wild males caught at 'Ōla'a between 1976 and 1979.

			Row 5		Row 5a		Row 6	
SITE	DATE	N	$\bar{x}$	s^2	$\bar{x}$	s^2	$\bar{x}$	s^2
Pole 44	Jul. '76	20	34.4	20.5	26.1	58.4	31.3	10.7
Pole 46	Oct. '78	22	32.7	11.8	27.5	20.4	31.3	7.9
Pole 46	Jul. '79	21	35.2	12.4	35.4	71.6	30.5	6.0

Row 5a shows not only very high sample variances (S^2) but also a highly significant increase in mean cilia number in 1979. Variation of this sort is highly unusual in natural populations. This unstable state may be characteristic of a new polygenic character under sexual selection, especially if the genetic basis of the character is still highly polymorphic.

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* Abstract